



Altiris Deployment Solution Guide for Blade Workstation Clients using Embedded OS 9.xx or 10.xx

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Audience Assumptions

This guide is for the person who administers blade workstation client computers for the HP Blade Workstation Solution. HP assumes you are familiar with installing, configuring, and using the Altiris Deployment Solution.

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1 Introduction

This guide provides information that you will need to download, capture, and deploy Embedded OS 9.xx or 10.xx on the following blade workstation client computers using Altiris Deployment Solution:

- HP Blade Workstation Client (formerly known as the HP Compaq Blade Workstation Client)
- HP dc72 Blade Workstation Client
- HP dc73 Blade Workstation Client

Information on downloading, capturing, and deploying the operating system for the HP Compaq t5720 and t5730 Thin Clients` is not provided in this guide.

The reader is assumed to be knowledgeable about:

- Installing, configuring, and using Altiris Deployment Solution
- Configuring DHCP and PXE servers

1-1 Client documentation

For the latest client documentation, potentially including a later version of this document, visit the following websites:

- HP Blade Workstation Client: http://www.hp.com/support/bwclient_manuals
- HP dc72 Blade Workstation Client: http://www.hp.com/support/dc72_manuals
- HP dc73 Blade Workstation Client: http://www.hp.com/support/dc73_manuals

1-2 Altiris Deployment Solution

With your purchase of the HP Blade Workstation Client, the HP dc72 Blade Workstation Client, or the HP dc73 Blade Workstation Client, you are entitled to a version of Altiris Deployment Solution designed to manage your client computers. Chapter 3 describes how to download and install Altiris Deployment Solution.

1-3 Tabloid-size pages

This document contains both letter size and tabloid size pages. Tabloid pages are included because they permit complex, multi-step processes to be documented on a single page. Tabloid pages are best viewed either on your computer monitor, or when printed on size B (11 inches by 17 inches) or ISO A3 (297 mm by 420 mm) paper. If you print this document, it is recommended that you use a printer capable of handling letter and tabloid size paper simultaneously. If your printer handles only letter size paper, you should specify, if available, scaling to letter size or scale to fit paper in the print dialog. This will ensure that figures on the tabloid pages are scaled to fit on letter size paper.

Tabloid pages may also be printed individually if you have access to a tabloid-capable printer. Select Current Page in the print dialog, and select Properties to view the paper size and orientation options. Depending on your printer, paper size may be listed as tabloid, size B, or A3. Orientation should be set to landscape.

2 Altiris Deployment Solution overview

This chapter provides an overview of the Altiris Deployment Solution. Three basic capabilities (building blocks) are described first, followed by a description of how these capabilities can be combined to perform more advanced operations. Chapter 5, "[Using Altiris Deployment Solution](#)", describes each of these operations in detail.

2-1 Deployment Solution building blocks

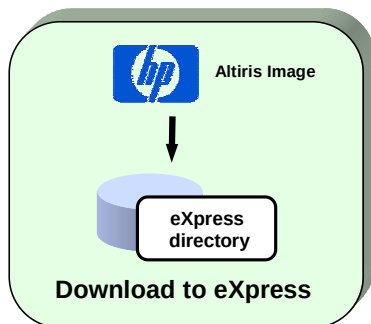
This section describes the three Altiris Deployment Solution building blocks upon which more advance operations are based:

1. **Download to eXpress**—Downloads the Embedded OS 9.xx or 10.xx image to the Deployment Server eXpress directory.
2. **Capture**—Creates a disk image of a client computer on the network, and store the disk image in the eXpress directory on the Altiris Deployment Server.
3. **Deploy**—Installs an OS image over the network from the eXpress directory to a client computer.

2-1-1 Download to eXpress

With **Download to eXpress**, the Embedded OS 9.xx or 10.xx image (the *Altiris Image*) is downloaded from the HP website directly to the Deployment Server eXpress directory (see Figure 2-1).

Figure 2-1 Download of Altiris image to the eXpress directory



The **Download to eXpress** details are described in Section 5-1, "[Downloading an OS image to the eXpress directory](#)."



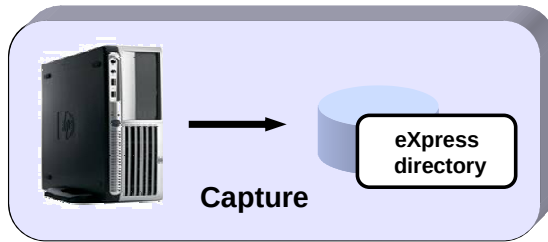
IMPORTANT: An Altiris image file will only be available for subsequent installations if it is saved under the network share eXpress directory set up when Altiris Deployment Server is installed. The directory path is typically:

C:\Program Files\Altiris\eXpress\Deployment Server\Images

2-1-2 Capture

Capturing an OS image is the process of transferring the OS image from the client computer to the Deployment Server eXpress directory (see Figure 2-2).

Figure 2-2 Image capture

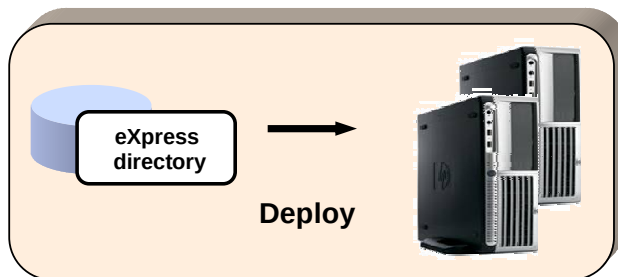


Capturing an image is described in Section 5-2, "[Capturing an OS image.](#)"

2-1-3 Deploy

Deploying an OS image is the process of installing the OS image from the eXpress directory to one or more client computers (see Figure 2-3).

Figure 2-3 Image deployment



Deploying an image is described in Section 5-3, "[Deploying an OS image.](#)"

2-2 Two-step operations

Using the three building blocks described previously, the following two-step operations can be performed:

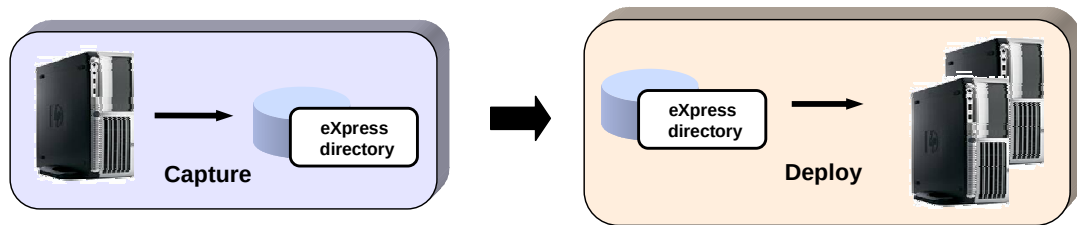
- Cloning the OS from the client computer to one or more computers.
- Downloading an OS image and deploying it to one or more client computers.

Performing these two-step operations is accomplished by sequentially performing the individual actions associated with each building block, as described next.

2-2-1 Cloning a client OS image

Cloning a client OS image utilizes the **Capture** and **Deploy** building blocks (see Figure 2-4).

Figure 2-4 Cloning an OS image



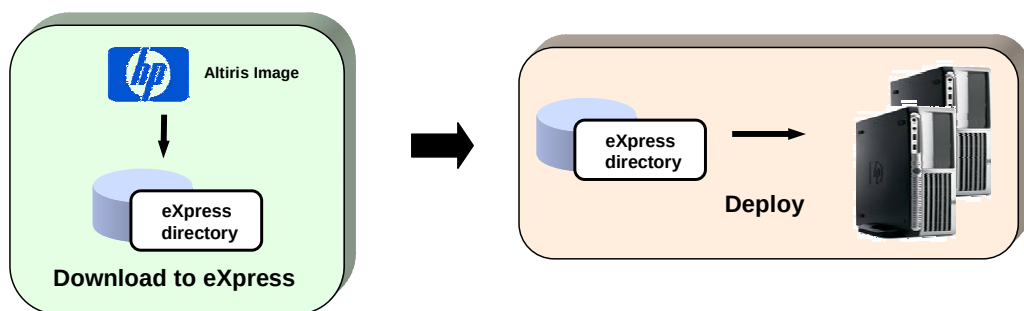
The steps to clone an OS image are:

1. Capture the OS image from the client computer, and store the image in the Deployment Solution eXpress directory.
2. Deploy the image from the eXpress directory to the target client computers.

2-2-2 Downloading and deploying an OS image

Downloading and deploying an OS image to multiple computers utilizes the **Download to eXpress** and **Deploy** building blocks (see Figure 2-5).

Figure 2-5 Downloading and deploying an OS image



The steps to download and deploy an OS image are:

1. Download the Altiris Image to the Deployment Server eXpress directory.
2. Deploy the image from the eXpress directory to the target client computers.



NOTE: The two-step operations are not described further; instead, refer to the description of each individual building block.

3 Installing Altiris Deployment Solution

This chapter describes how to download and install the Microsoft Windows version of Altiris Deployment Solution 6.8 SP2.



NOTE: At the time of this writing, Deployment Solution 6.8 SP2 is the latest version available. HP recommends that you install later versions of Deployment Solution when they become available.



NOTE: Your complimentary copy of the Altiris Deployment Solution is governed by the Altiris Software License Agreement, which you are deemed to have agreed to by installing the software. This complimentary copy of the software is non-transferable, and may only be used to remotely manage the HP blade workstation client computers or computers for which a client-side license has been purchased. Please review the terms of the license agreement before installing the software, by visiting <http://www.altiris.com/legal/EULA-general.asp>.

3-1 Downloading Altiris Deployment Solution

To download Altiris Deployment Solution, perform the following steps:

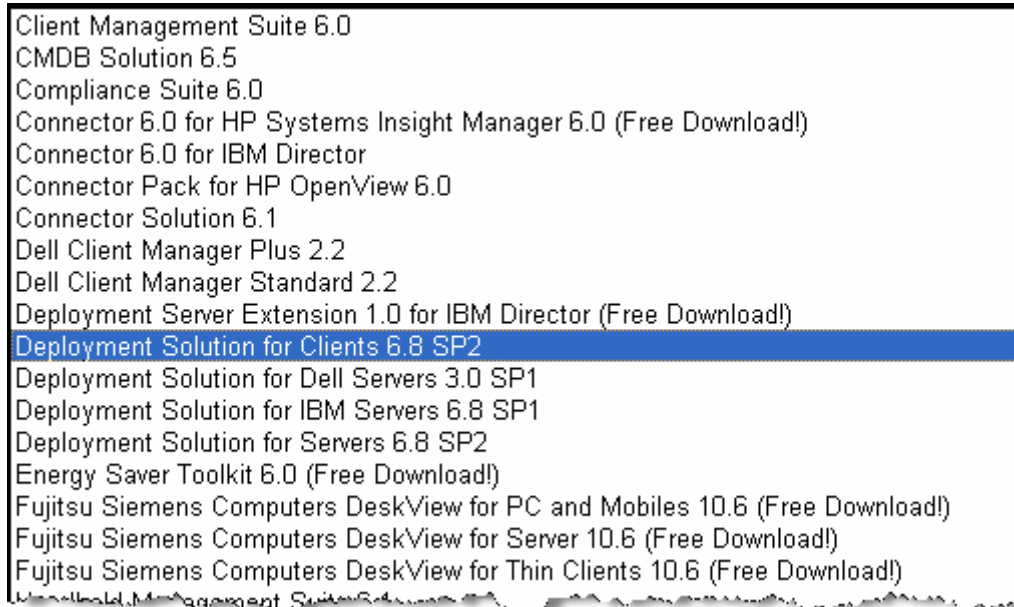
1. Go to the website <http://www.altiris.com/hptc>, and click **Download Deployment Solution**. If this is your first visit to this website, you'll be asked to provide demographics and business information. The product **Deployment Solution for HP Thin Clients (Free Download)** should be displayed in the **Select a product to download** menu. Enter your e-mail address and click **Submit**.
2. The End User License Agreement is displayed next—click **YES, I agree** if you agree with the terms of the license agreement.
3. On the next page, click **Deployment Solution for Clients 6.8 SP2 (Windows)** listed in step 2. This brings up the dialog in Figure 3-1. Save the Altiris Deployment Solution zip file on your disk for later use.

Figure 3-1 File Download dialog for Altiris Deployment Solution 6.8 SP2



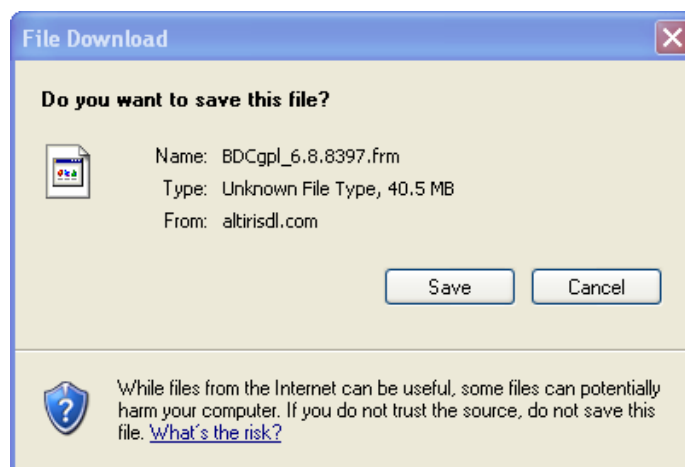
4. The next step is to download the Linux and Free DOS Automation Environment for Deployment Solution 6.8 SP2. To do this, perform the following steps:
 - a. Click **Check the Altiris Product Updates page for the latest Deployment Solution updates**, which is listed in step 4—this will display the *Products Update* page.
 - b. On the *Products Update* page, click **download site** to display the *Download* page. On the *Download* page, use the **Select a product to download** menu to select **Deployment solution for Clients 6.8 SP2** (see Figure 3-2). Click **Submit** and respond to the End User License Agreement.

Figure 3-2 Download menu



- c. Next, the *Deployment Solution for Clients* page is displayed. Click **Linux and FreeDOS Automation Environment for Deployment Solution 6.8 SP1**, which brings up the dialog in Figure 3-3. Save the .frm file on your disk—this file is used during Deployment Solution installation.

Figure 3-3 Downloading of the .frm file



Installation of Deployment Solution is described in the next section.

3-2 Installing Altiris Deployment Solution

To install Altiris Deployment Solution, perform the following steps:

1. The zip file saved in step 3 of the previous section contains a Windows executable file (.exe) and a license file (.lic)—see Figure 3-4. To begin the installation of Altiris Deployment Solution, extract and run the executable file.

Figure 3-4 Contents of the zip file



2. During the installation process, you'll be prompted for which preboot environment to use. Select Linux and, when prompted, specify the path to the .frm file saved in step 4-c of the previous section.
3. For additional installation and configuration instructions, refer to the *HP Thin Client Management Getting Started Guide* available at http://www.altiris.com/upload/altiris_hpthinclients_gettingstarted.pdf.



NOTE: HP blade workstation clients are automatically recognized as license exempt when they first communicate with Altiris Deployment Solution. No license key needs to be activated in the Deployment Solution console to manage these clients.

3-3 Installing the 9x sample jobs

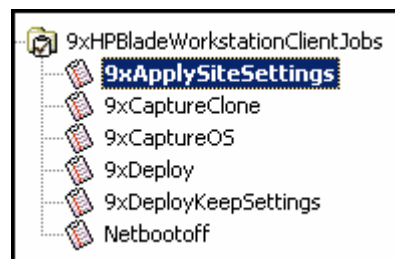
A number of Deployment Solution sample jobs are available on the client software website to implement common capture and deployment tasks. To install the sample jobs for Embedded OS 9.xx, perform these steps:

1. Based on your client computer, go to one of the following websites:
 - HP Blade Workstation Client: <http://www.hp.com/support/bwclient>
 - HP dc72 Blade Workstation Client: <http://www.hp.com/support/dc72>
 - HP dc73 Blade Workstation Client: <http://www.hp.com/support/dc73>
2. Click **Download drivers and software**.
3. Click **Workstation Blade Client Embedded OS**, and scroll down to the **Software** section.
4. Scroll down the list of client software to the following sample jobs file:

**Altiris Deployment Solution Sample
Jobs for Microsoft Windows Systems
(9xHPBladeWorkstationClientJobs.bin)**

5. To view details of the sample jobs, click on the description. To download the sample jobs, click on **Obtain software**, and save the 9xHPBladeWorkstationClientJobs.bin file to your hard drive.
6. Bring up the Deployment Solution console. In the Jobs pane, right click the Samples folder, and select Import. Browse to the 9xHPBladeWorkstationClientJobs.bin file saved in step 5, and select it. Figure 3-5 shows the 9.xx sample jobs that are imported.

Figure 3-5 Embedded OS 9.xx sample jobs



3-4 Installing the 10x sample jobs

The 10x sample jobs are installed in the same manner as the 9x sample jobs described in the previous section, except that the 10x sample jobs are labeled as follows:

**Altiris Deployment Solution Sample
Jobs for Microsoft Windows Systems
(10xHPBladeWorkstationClientJobs.bin)**

3-5 Prerequisites for using the 9x or 10x sample jobs

The following requirements must be met in order to use the 9x or 10x sample jobs supplied by HP:

- The client computers must be on the same subnet as the Altiris Deployment Server.
- There can only be one PXE server per subnet.
- The client computers must already have Embedded OS version 9.40 or newer installed.
- If you are using Embedded OS 8.xx, you must run e2fsck immediately before every activity that happens at the automation console prompt. Failure to clean the partition after every reboot will result in an Altiris 'Invalid Volume' error.
- Each client must have a static Altiris Deployment Server IP address assigned, or be on a network configured to allow the Client to detect the server IP using multicasting.

3-6 Client computer boot order

For all imaging operations described in this guide, the client computer boot order should be as shown in Figure 3-6. The boot order is set by pressing the **F10** key during boot, selecting **[language] > Storage > Boot Order**, and following the instructions in the Boot Order screen.

Figure 3-6 Client computer boot order



4 Preparing the PXE boot file for the HP dc73 Blade Workstation Client

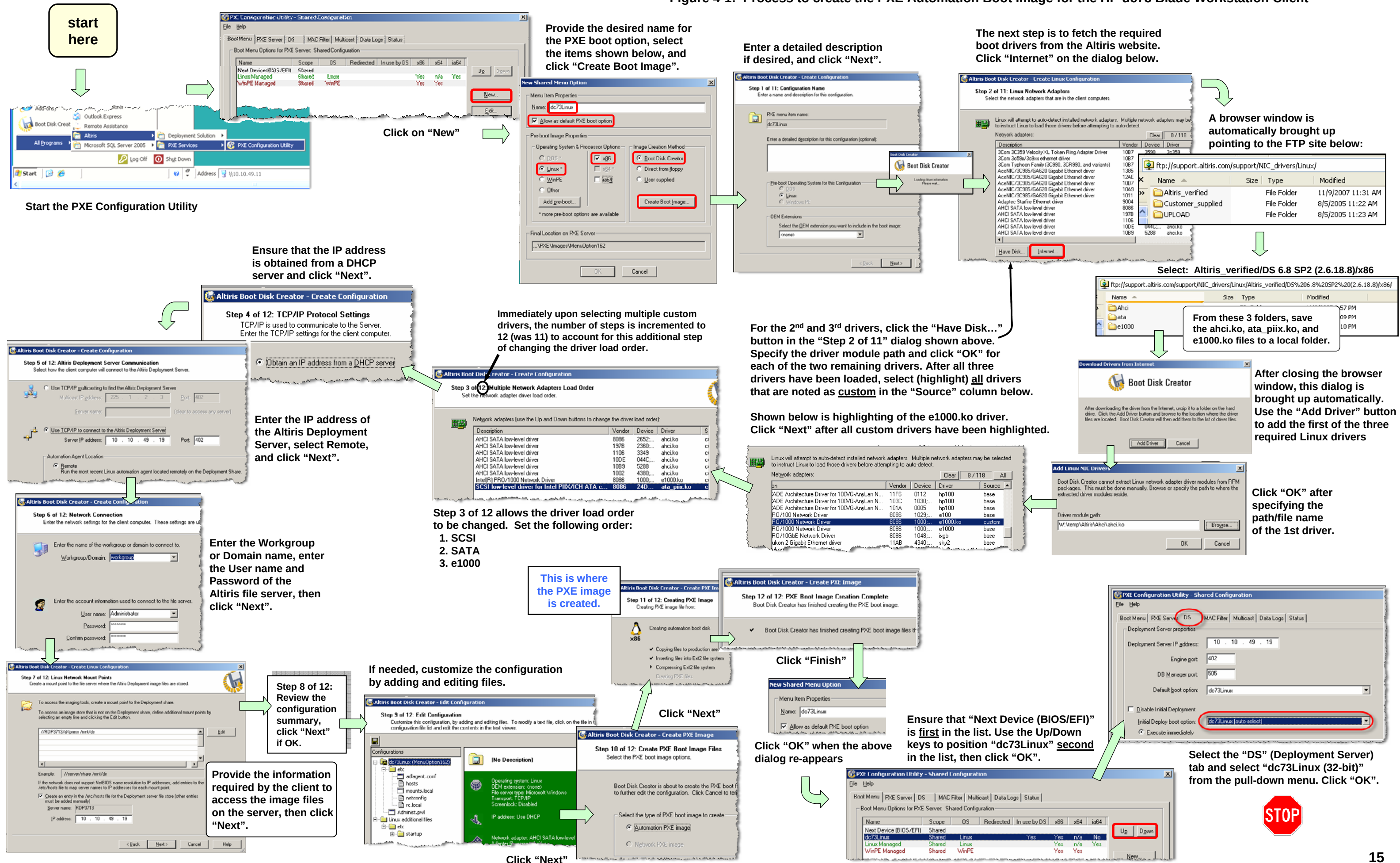
When the client computer performs a PXE boot, the computer obtains its minimal operating system from the Altiris Deployment Server. For the HP dc73 Blade Workstation Client, the PXE boot file needs to be created to ensure that the required network drivers are included. For the earlier client computers (the HP dc72 Blade Workstation Client and the HP Blade Workstation Client), the default PXE boot operating system provided with Altiris Deployment Solution 6.8 can be used as-is.

This chapter describes how to create the PXE boot file for the HP dc73 Blade Workstation Client. If you're not using this particular client computer, you can skip this chapter. The process to create the PXE boot file for the HP dc73 Blade Workstation Client is shown in Figure 4-1.



NOTE: The process described in Figure 4-1 includes downloading several drivers from the Altiris website. These drivers are used to create the PXE automation boot image, and are required when using Altiris Deployment Solution 6.8. Altiris Deployment Solution 6.9, when it becomes available, will no longer require the downloading and inclusion of drivers from the Altiris website.

Figure 4-1: Process to create the PXE Automation Boot Image for the HP dc73 Blade Workstation Client



5 Using Altiris Deployment Solution

This chapter describes how to use Altiris Deployment Solution—specifically, each of the Deployment Solution building blocks is described. As noted previously, the individual building blocks can be combined to perform more complex operations.



NOTE: Embedded OS 9.xx and 9x sample jobs are referenced in this chapter; however, the discussion applies to Embedded OS 10.xx and the 10x sample jobs as well.

5-1 Downloading an OS image to the eXpress directory

With the **Download to eXpress** process, Embedded OS 9.xx or 10.xx (the *Altiris Image*) is downloaded from the HP website directly to the Deployment Server eXpress directory (see Figure 5-1).

Figure 5-1 Download to eXpress directory

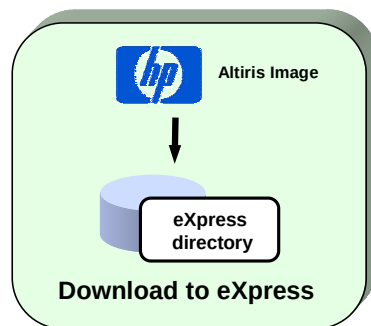


Figure 5-2 on the next page describes this process in detail.

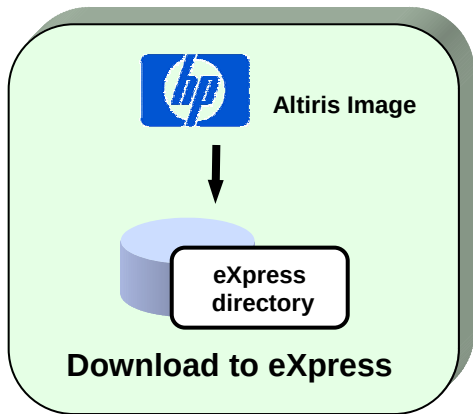


Figure 5-2: Download the Altiris image file to the eXpress directory

Find the Altiris Image by starting at the HP website appropriate for your client computer:

<http://www.hp.com/support/bwclient>
<http://www.hp.com/support/dc72>
<http://www.hp.com/support/dc73>

The web page at right is for the HP dc73 Blade Workstation Client.

Click on the circled "Download drivers and software" link.

Business Support Center
<http://www.hp.com/support/dc73>

HP dc73 Blade Workstation Client

 » Choose another product
 » Create a personal product profile (Why register?)

Speed access to your product and warranty information. Personalize your support experience. [Register with the Business Support Center now!](#)

Tasks for HP dc73 Blade Workstation Client

» **Download drivers and software**
 » Troubleshoot a problem
 » Discover and use a product
 » Perform regular maintenance
 » Recycle and dispose

Click on the link shown.

Download drivers and software

HP dc73 Blade Workstation Client

 » Choose another product
 » Create a personal product profile (Why register?)

By downloading, you agree to the terms and conditions of the [HP Software License Agreement](#).

Choose your software/driver language:
 English (International) [v] [x]

Select operating system

» **Workstation Blade Client Embedded OS**

IMPORTANT: If multiple Altiris Images are available, always download the most recent image.

Description	Current version	Size (MB)	Estimated download time	Previous version	
HP Compaq Blade Workstation Altiris Image	09.40 Rev. A 30 Oct 2007				» Obtain software
HP Compaq Blade Workstation Client USB Key Image Recovery	09.40 Rev. A 30 Oct 2007	80.5	56K: 3h 512K: 21m		Download »
HP Compaq Blade Workstation Raw Image	09.40 Rev. A 30 Oct 2007				» Obtain software
Source CD for HP Compaq Blade Workstation Client	09.40 Rev. A 30 Oct 2007				» Obtain software

Click on "Obtain software" for the HP Compaq Blade Workstation Altiris Image

Read the End User License Agreement and indicate whether or not you agree.

☒ I Agree ☐ I do not Agree

PLEASE READ CAREFULLY: THE USE OF SOFTWARE AVAILABLE AT THIS SITE IS SUBJECT TO THE TERMS AND CONDITIONS THAT FOLLOW. IF YOU AGREE TO THESE TERMS, PLEASE CHOOSE THE "I ACCEPT" OPTION LOCATED ADJACENT TO THE SCREEN WHERE THIS AGREEMENT IS DISPLAYED. IF YOU DO NOT AGREE TO THESE LICENSE TERMS, PLEASE CHOOSE THE "I DO NOT ACCEPT" OPTION AND DO NOT DOWNLOAD ANY SOFTWARE FROM THIS SITE.

End User License Agreement
 PLEASE READ CAREFULLY BEFORE USING THIS EQUIPMENT: This End-User license Agreement ("EULA") is a legal agreement between (a) you (either an individual or a single entity) and (b) Hewlett-Packard Company ("HP") that governs your use of any Software Product, installed on or made available by HP for use with your HP product ("HP Product"), that is not otherwise subject to a separate license agreement between you and HP or its suppliers. Other software may contain a EULA in its online documentation. The term "Software Product" means computer software and may include associated media, printed materials and "online" or electronic documentation. An amendment or addendum to this EULA may accompany the HP Product.

Click Save and specify a location to save the image file to. In this case, a temporary file location under C:\SWSetup is used.

File Download

Do you want to save this file?

Name: altirisbwc-940_156.img
 Type: Unknown File Type, 109 MB
 From: ftp.hp.com

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not save this file. [What's the risk?](#)

Download is complete.

Download complete

Download Complete

Saved:
 altirisbwc-940_156.img from ftp.hp.com

Downloaded: 109 MB in 2 min 53 sec
 Download to: C:\SWSetup\...\altirisbwc-940_156.img
 Transfer rate: 648 KB/Sec

☐ Close this dialog box when download completes

Click Close and then move the image file to the following folder under the eXpress directory.

C:\Program Files\Altiris\Express\Deployment Server\Images

Name	Size	Type	Date Modified	Attributes
DOS		File Folder	2/8/2007 2:13 AM	
Linux		File Folder	8/3/2007 3:55 PM	
Mac		File Folder	2/8/2007 2:13 AM	
Other		File Folder	11/21/2007 12:12 AM	
settings		File Folder	2/7/2007 11:26 PM	
Windows		File Folder	2/8/2007 2:13 AM	
001cc46ee544.img	0 KB	Altiris Image File	11/21/2007 2:18 AM	A
altirisbwc-940_156.img	112,227 KB	Altiris Image File	10/31/2007 12:31 PM	A

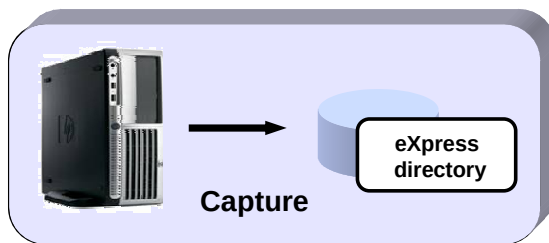
IMPORTANT: When Altiris Deployment Server is installed, an eXpress directory is created. The .img files must be saved under this directory in order to be deployable over the network.



5-2 Capturing an OS image

Capturing the Embedded OS 9.xx or 10.xx image is the process of copying the OS image from the client computer to the eXpress directory on the Altiris Deployment Server (see Figure 5-3).

Figure 5-3 OS image capture



This section describes the two sample jobs that capture an OS image:

1. **9xCaptureClone**—Captures an exact copy of Embedded OS 9.xx
2. **9xCaptureOS**—Captures Embedded OS 9.xx except for the current settings—instead, the current settings are replaced by pre-defined settings.

5-2-1 9xCaptureClone

Figure 5-4 on the next page describes the 9xCaptureClone sample job.

5-2-2 9xCaptureOS

Figure 5-5 on page 19 describes the 9xCaptureOS sample job.

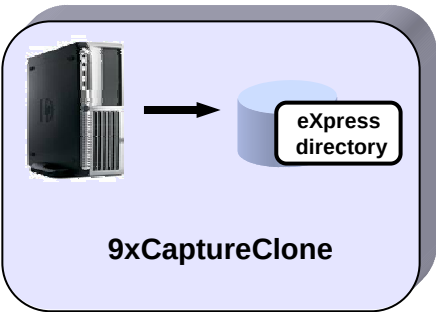
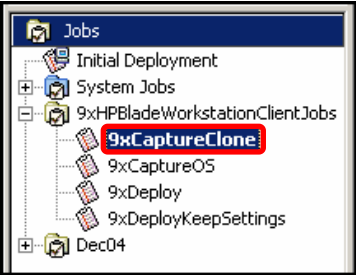


Figure 5-4 9xCaptureClone — Captures the complete client OS, including the local setting files

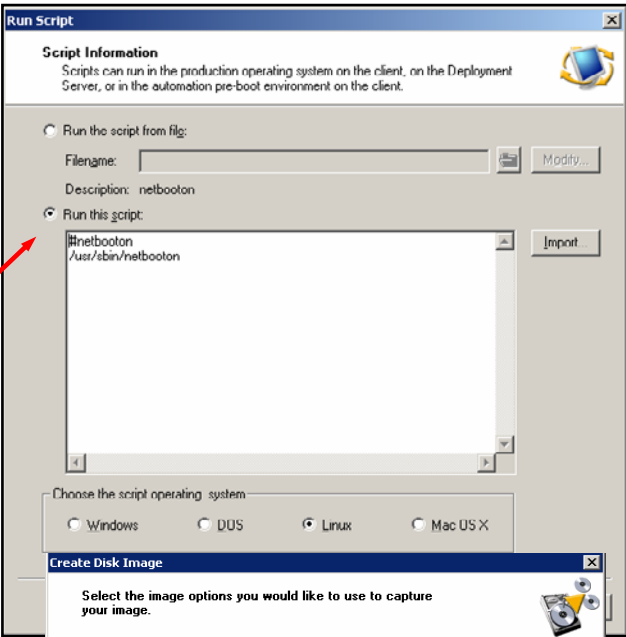
Viewing the 9xCaptureClone Job



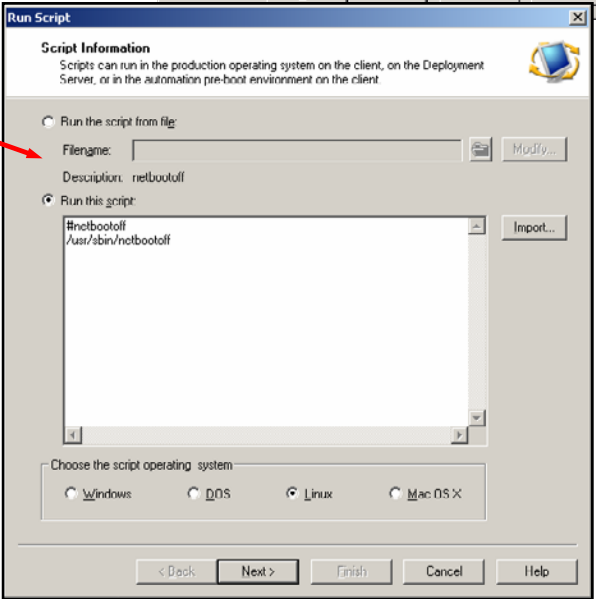
Click on 9xCaptureClone to view its tasks.

9xCaptureClone	
Description:	
Condition:	[default]
Task	Details
Run Script	netbooton
Create Disk Image	.\Images\955.img
Run Script	netbootoff

The netbooton script runs on the client and changes the boot order to boot from the network first (PXE boot). After this script is complete, the computer is rebooted.



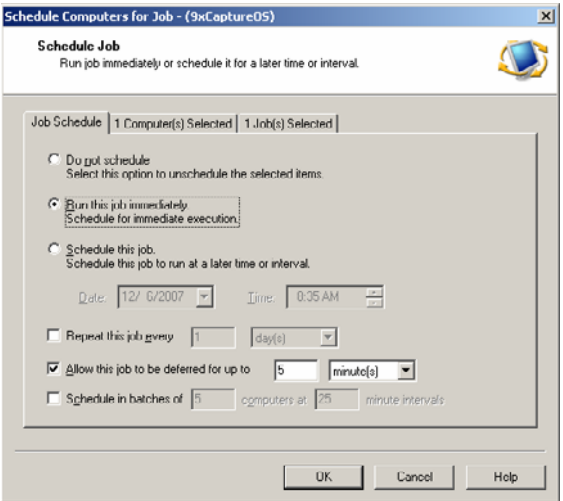
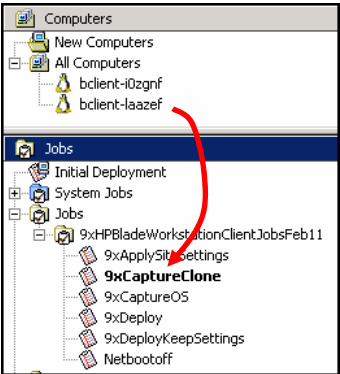
The PXE-booted automation OS interacts with the Altiris server to capture the Embedded OS as-is, and sends the OS image to the Altiris server.



The netbootoff script runs on the client and changes the boot order to boot in this order:
 1. USB
 2. Hard drive
 3. Network
 After the script completes, the computer is rebooted. Absent a USB drive key plugged in, the client will boot back into the Embedded OS from the hard drive.

Executing the 9xCaptureClone Job

Drag the computer to the 9xCaptureClone job to begin the capture process.



Select the desired schedule and click "OK".

Example status messages

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Sending script...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Booting to Automation.

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Booting to Automation.

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Uploading disk image...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Imaging process complete

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Sending Wake-On-Lan signal...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Sending script...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:08 AM	Script execution complete



Status summary:

Status	Time	Status Code	Module
Sending script...	2/14/2008 12:08:08...		DeployServer
Transferring file: 100% complet...	2/14/2008 12:08:09...		DeployServer
Executing script: "temp:rxscript...	2/14/2008 12:08:09...		DeployServer
Script execution complete	2/14/2008 12:08:09...	0	ADLAgent
Restarting computer to prepare ...	2/14/2008 12:08:10...		DeployServer
Booting to Automation.	2/14/2008 12:08:10...		DeployServer
Booting to Automation.	2/14/2008 12:10:52...		DeployServer
Uploading disk image...	2/14/2008 12:12:00...		DeployServer
Imaging process complete	2/14/2008 12:12:28...	0	ADLAgent
Sending script...	2/14/2008 12:15:03...		DeployServer
Executing script: "temp:rxscript...	2/14/2008 12:15:07...		DeployServer
Script execution complete	2/14/2008 12:15:07...	0	ADLAgent

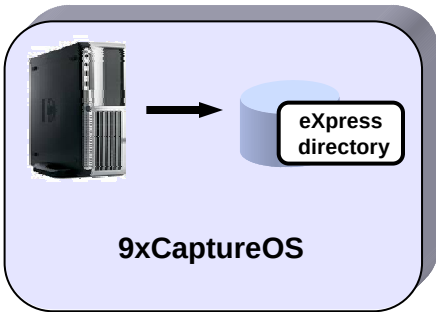
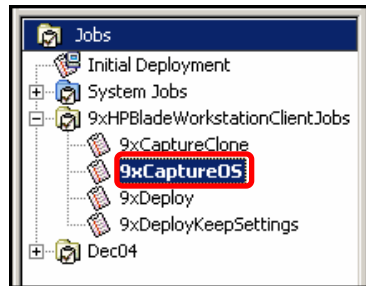
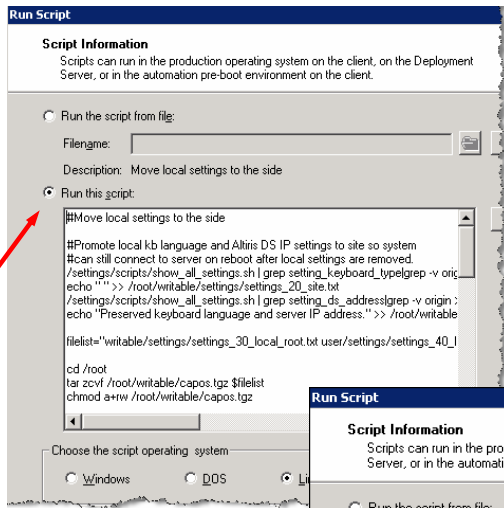
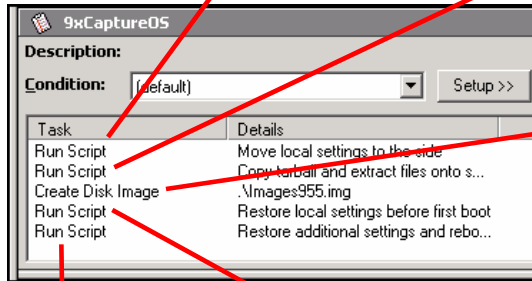


Figure 5-5 9xCaptureOS — Captures the OS but without the current settings

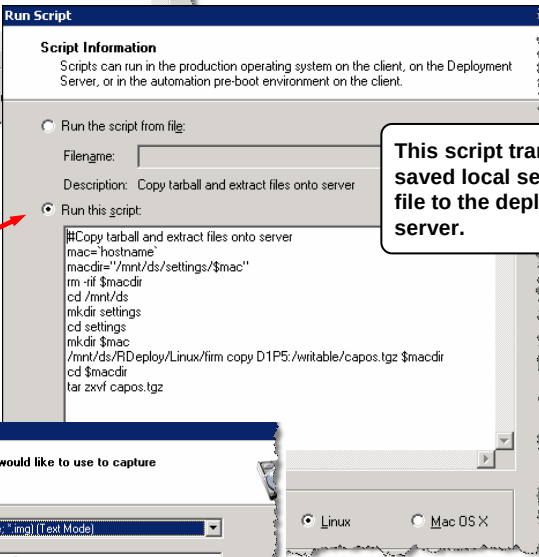
Viewing the 9xCaptureOS Job



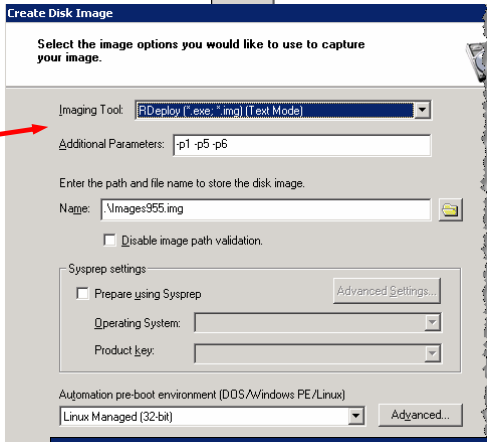
Click on 9xCaptureOS to view its tasks.



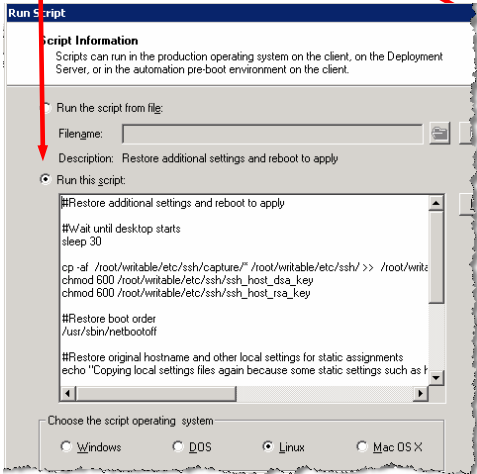
This script runs on the Embedded OS. It saves the local settings for later restoration, and then stores a set of "pristine" settings in place of the original settings files.



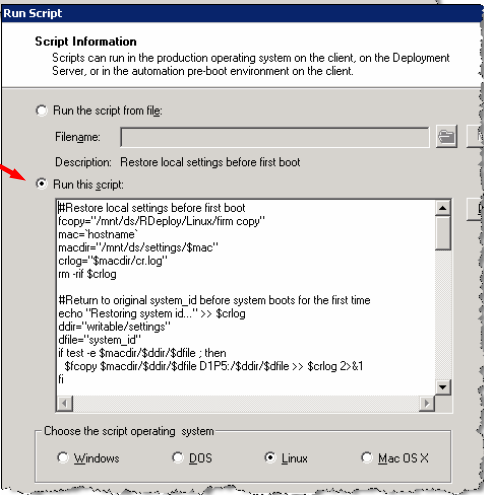
This script transfers the saved local settings file to the deployment server.



Specifies the partitions to be saved and where the OS image file is to be saved. The image is then captured and transferred to the Altiris deployment server.



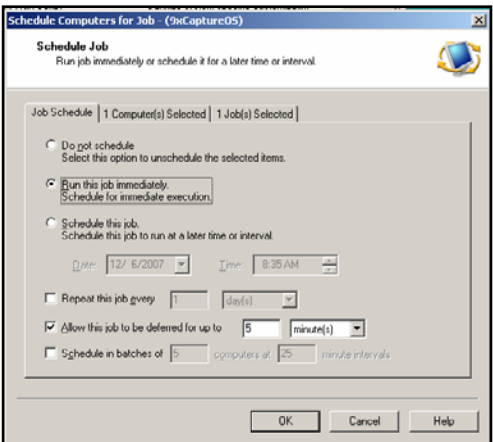
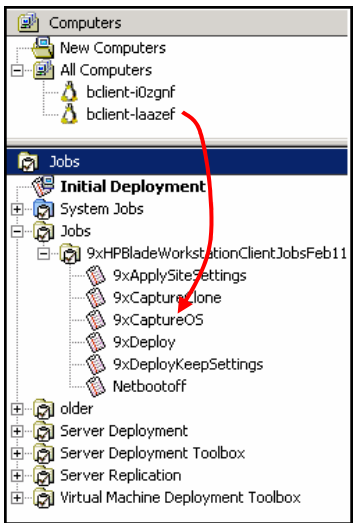
This script restores additional settings and reboots the computer.



This script runs on the Embedded OS, and restores the original settings files.

Executing the 9xCaptureOS Job

Drag the computer to the 9xCaptureOS job.



Select the desired schedule and click "OK".



Example status messages



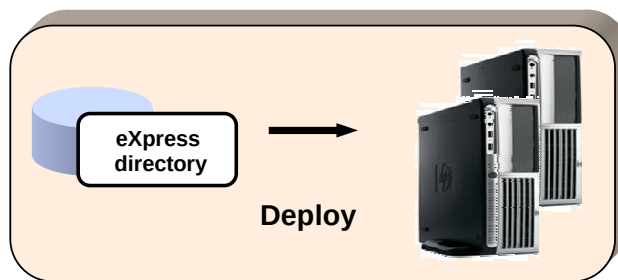
Status	Time	Status Code	Module
Script execution complete	2/13/2008 11:22:15...	0	ADLAgent
Booting to Automation.	2/13/2008 11:22:15...		DeployServer
Sending script...	2/13/2008 11:23:22...		DeployServer
Transferring file: 100% complet...	2/13/2008 11:23:25...		DeployServer
Executing script: "temp:rxscript...	2/13/2008 11:23:25...		DeployServer
Script execution complete	2/13/2008 11:23:26...	0	ADLAgent
Uploading disk image...	2/13/2008 11:23:26...		DeployServer
Imaging process complete	2/13/2008 11:23:51...	0	ADLAgent
Sending script...	2/13/2008 11:23:51...		DeployServer
Transferring file: 100% complet...	2/13/2008 11:23:52...		DeployServer
Executing script: "temp:rxscript...	2/13/2008 11:23:54...		DeployServer
Script execution complete	2/13/2008 11:23:54...	0	ADLAgent
Sending script...	2/13/2008 11:25:14...		DeployServer
Executing script: "temp:rxscript...	2/13/2008 11:25:50...		DeployServer
Script execution complete	2/13/2008 11:25:50...	0	ADLAgent

Status summary:

5-3 Deploying an OS image

Deploying an OS image is the process of installing the Embedded OS 9.xx image from the eXpress directory to one or more client computers (see Figure 5-6).

Figure 5-6 Image deployment



This section describes the two sample jobs that deploy an OS image:

1. **9xDeploy**—Deploys the OS image while overwriting all current OS settings.
2. **9xDeployKeepSettings**—Deploys the image while retaining the current OS settings stored in partition 5.

5-3-1 9xDeploy

Figure 5-7 on the next pages describe the 9xDeploy sample job.

5-3-2 9xDeployKeepSettings

Figure 5-8 on page 23 describes the 9xDeployKeepSettings sample job.

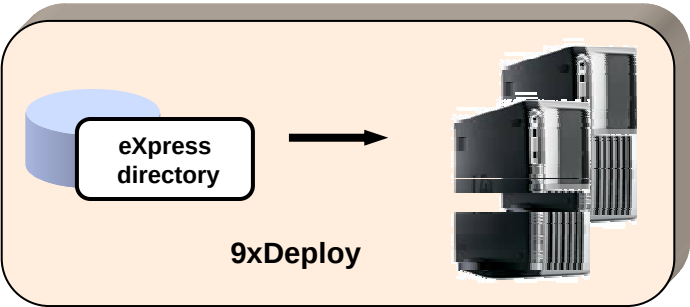
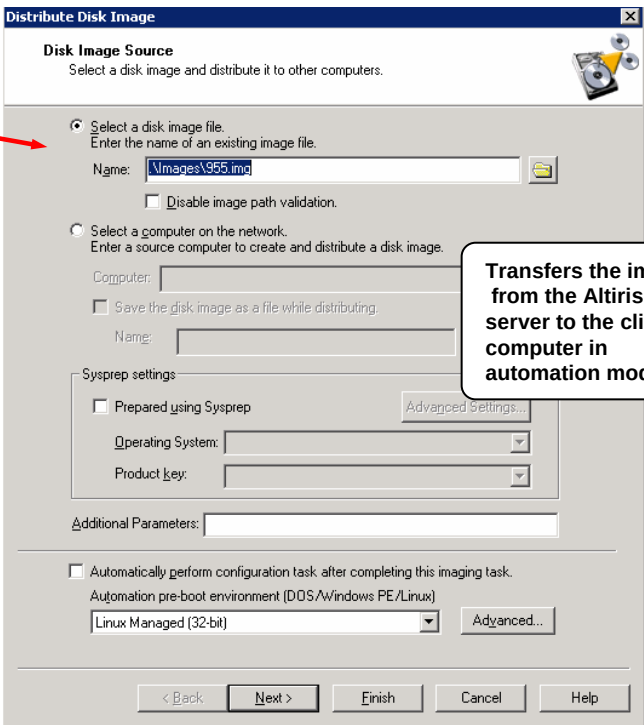
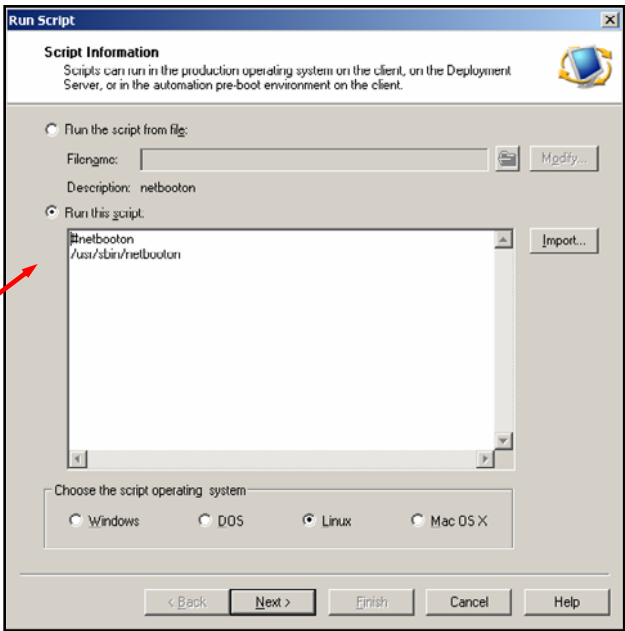
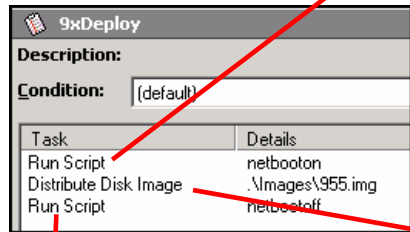
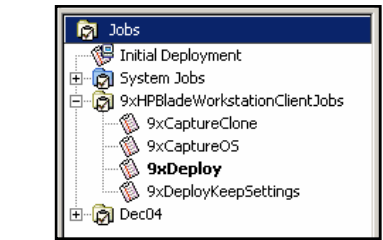


Figure 5-7 9xDeploy — Deploy the complete OS from the Altiris server

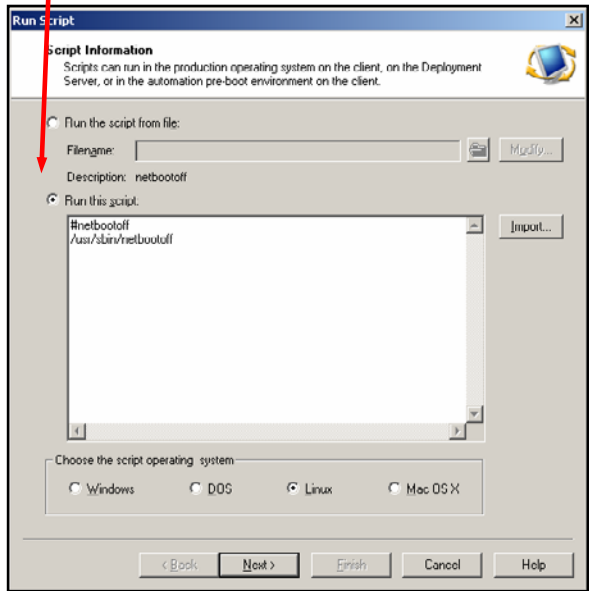
IMPORTANT: The 9xDeploy job performs a clean install, and wipes out everything on the Disk on Module drive.

Boots from the network into automation mode.

Viewing the 9xDeploy Job



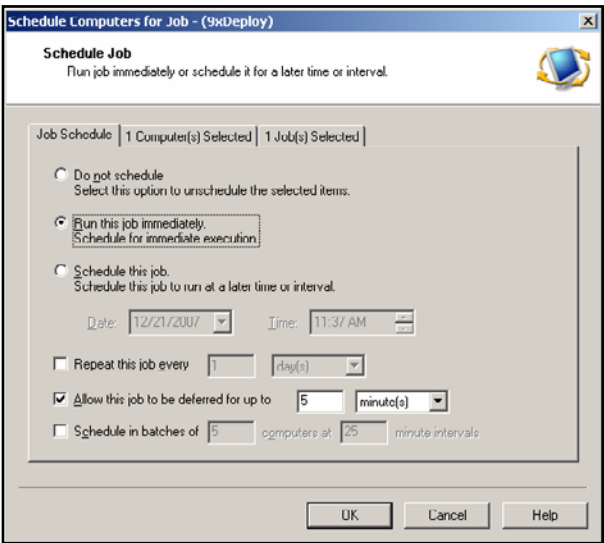
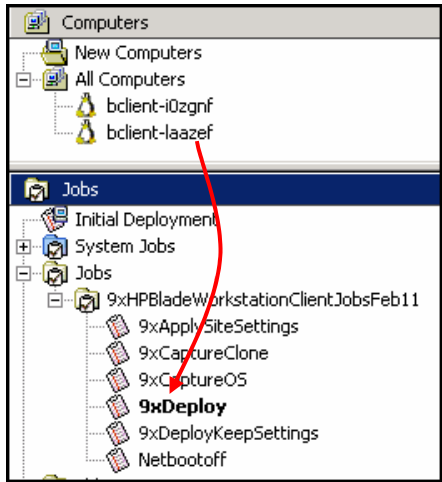
Transfers the image from the Altiris server to the client computer in automation mode.



Changes the boot order to boot from the computer's hard drive. After the script is complete, the computer is rebooted.

Executing the 9xDeploy Job

Drag the computer to the 9xDeploy job.



Select the desired schedule and click "OK".

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Sending script...



Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Booting to Automation.

Example status messages

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Downloading disk image...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Imaging process complete

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Sending Wake-On-Lan signal...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Sending script...

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 12:55 AM	Script execution complete



Status summary:

Status	Time	Status Code	Module
Sending script...	2/14/2008 12:55:58...		DeployServer
Transferring file: 100% complet...	2/14/2008 12:55:59...		DeployServer
Executing script: "temp:rxscript...	2/14/2008 12:55:59...		DeployServer
Script execution complete	2/14/2008 12:55:59...	0	ADLAgent
Booting to Automation.	2/14/2008 12:56:00...		DeployServer
Downloading disk image...	2/14/2008 12:57:05...		DeployServer
Imaging process complete	2/14/2008 12:58:29...	0	ADLAgent
Sending script...	2/14/2008 1:01:07 ...		DeployServer
Executing script: "temp:rxscript...	2/14/2008 1:01:11 ...		DeployServer
Script execution complete	2/14/2008 1:01:11 ...	0	ADLAgent

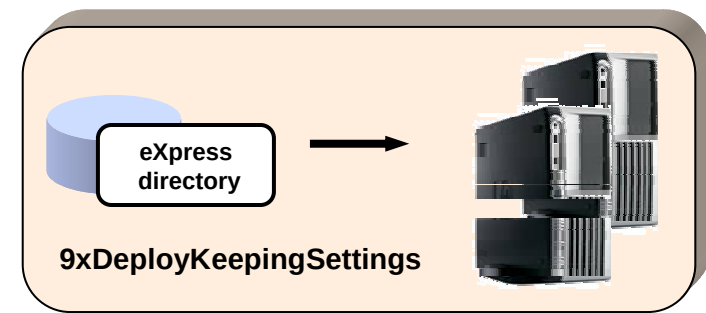


Figure 5-8 9xDeployKeepSettings — Deploy the Embedded OS but keep the current settings

Viewing the 9xDeployKeepSettings Job

This script executes from within the Embedded OS and captures the current settings in a file.

Run Script

Script Information
Scripts can run in the production operating system on the client, on the Deployment Server, or in the automation pre-boot environment on the client.

☐ Run the script from file:
Filename:
Description: Create tarball of current settings

☒ Run this script:
#Create tarball of current settings
#for Altiris BWD/DeployKeepSettingsJob
#Preserving settings through bootworks is only supported on HP Blade
#Workstation Clients running Embedded OS ver 08 R1 or newer
Aus/sbin/netbootlin
cd /root
filelist="user/backgrounds/" writable/etc/ssh/ssh-key writable/etc/ssh/ssh-key
cd /root

Choose the script operating system:
☐ Windows ☐ DOS ☒ Linux ☐ Mac OS X

Run Script

Script Information
Scripts can run in the production operating system on the client, on the Deployment Server, or in the automation pre-boot environment on the client.

☐ Run the script from file:
Filename:
Description: Copy tarball to server

☒ Run this script:
#Copy tarball to server
mac="hostname"
macdir="/mnt/ds/settings/\$mac"
rm -rf \$macdir
mkdir -p \$macdir
/mnt/ds/Deploy/Linux/firm copy D1P5:/writable/settings.tgz \$macdir
cd \$macdir
tar xvf settings.tgz

Choose the script operating system:
☐ Windows ☐ DOS ☒ Linux ☐ Mac OS X

This script executes in automation mode and copies the saved settings to the Altiris server.

The settings are saved in a folder based on the computer MAC address.

Address: C:\Program Files\Altiris\Express\Deployment Server\settings

Folders: Program Files

Name: 001cc46ee544

Run Script

Script Information
Scripts can run in the production operating system on the client, on the Deployment Server, or in the automation pre-boot environment on the client.

☐ Run the script from file:
Filename:
Description: Restore local settings and reboot to apply

☒ Run this script:
#Restore local settings and reboot to apply
echo "Copying local settings files again because some static settings such as 1 up of /root/writable/settings/settings_30_local_root.dks /root/writable/setting up of /root/user/settings/settings_40_local_user.dks /root/user/settings/setti
reboot

Choose the script operating system:
☐ Windows ☐ DOS ☒ Linux ☐ Mac OS X

While still in automation mode, the settings are copied back to the client from the Altiris server and restored.

Run Script

Script Information
Scripts can run in the production operating system on the client, on the Deployment Server, or in the automation pre-boot environment on the client.

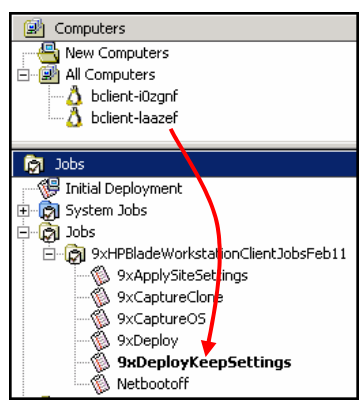
☐ Run the script from file:
Filename:
Description: Restore settings to client

☒ Run this script:
#Restore settings to client
mac="hostname"
macdir="/mnt/ds/settings/\$mac"
/mnt/ds/Deploy/Linux/firm copy
log="\$macdir/restore.log"
rm -rf \$log
Aus/sbin/netbootlin
ddir="/writable/etc/opt/npromote/greiceiver/"
"dile=greiceiverconfig"
if test -e \$macdir/\$ddir; then
\$copy \$macdir/\$ddir D1P5/\$ddir >> \$log 2>&1
fi

Choose the script operating system:
☐ Windows ☐ DOS ☒ Linux ☐ Mac OS X

Executing the 9xDeployKeepSettings Job

Drag the computer to the 9xDeployKeepSettings job.



Schedule Computers for Job - (9xDeployKeepSettings)

Schedule Job
Run job immediately or schedule it for a later time or interval.

Job Schedule: 1 Computer(s) Selected | 1 Job(s) Selected

☐ Do not schedule
Select this option to unschedule the selected items.

☒ Run this job immediately.
Schedule for immediate execution.

☐ Schedule this job.
Schedule this job to run at a later time or interval.
Date: 11/29/2007 Time: 12:56 PM

☐ Repeat this job every 1 day(s)

☒ Allow this job to be deferred for up to 5 minute(s)

☐ Schedule in batches of 5 computers at 25 minute intervals

OK Cancel Help

Select the desired schedule and click "OK"

Example status messages

Computer	Group	Scheduled At	Status
bclient-laazef		2/14/2008 1:24 AM	Sending script...
bclient-laazef		2/14/2008 1:24 AM	Booting to Automation.
bclient-laazef		2/14/2008 1:24 AM	Downloading disk image...
bclient-laazef		2/14/2008 1:24 AM	Sending script...
bclient-laazef		2/14/2008 1:24 AM	Script execution complete
bclient-laazef		2/14/2008 1:24 AM	Sending Wake-On-Lan signal...
bclient-laazef		2/14/2008 1:24 AM	Sending script...
bclient-laazef		2/14/2008 1:24 AM	Script execution complete



Status summary:

Schedule Status Detail

Status	Time	Status Code	Module
Script execution complete	2/14/2008 1:24:53 ...	0	ADLAgent
Booting to Automation.	2/14/2008 1:24:53 ...		DeployServer
Sending script...	2/14/2008 1:25:57 ...		DeployServer
Transferring file: 100% complet...	2/14/2008 1:26:00 ...		DeployServer
Executing script: "temp:rxscript..."	2/14/2008 1:26:00 ...		DeployServer
Script execution complete	2/14/2008 1:26:00 ...	0	ADLAgent
Downloading disk image...	2/14/2008 1:26:01 ...		DeployServer
Imaging process complete	2/14/2008 1:27:23 ...	0	ADLAgent
Sending script...	2/14/2008 1:27:23 ...		DeployServer
Transferring file: 100% complet...	2/14/2008 1:27:24 ...		DeployServer
Executing script: "temp:rxscript..."	2/14/2008 1:27:26 ...		DeployServer
Script execution complete	2/14/2008 1:27:26 ...	0	ADLAgent
Sending script...	2/14/2008 1:30:01 ...		DeployServer
Executing script: "temp:rxscript..."	2/14/2008 1:30:05 ...		DeployServer
Script execution complete	2/14/2008 1:30:05 ...	0	ADLAgent

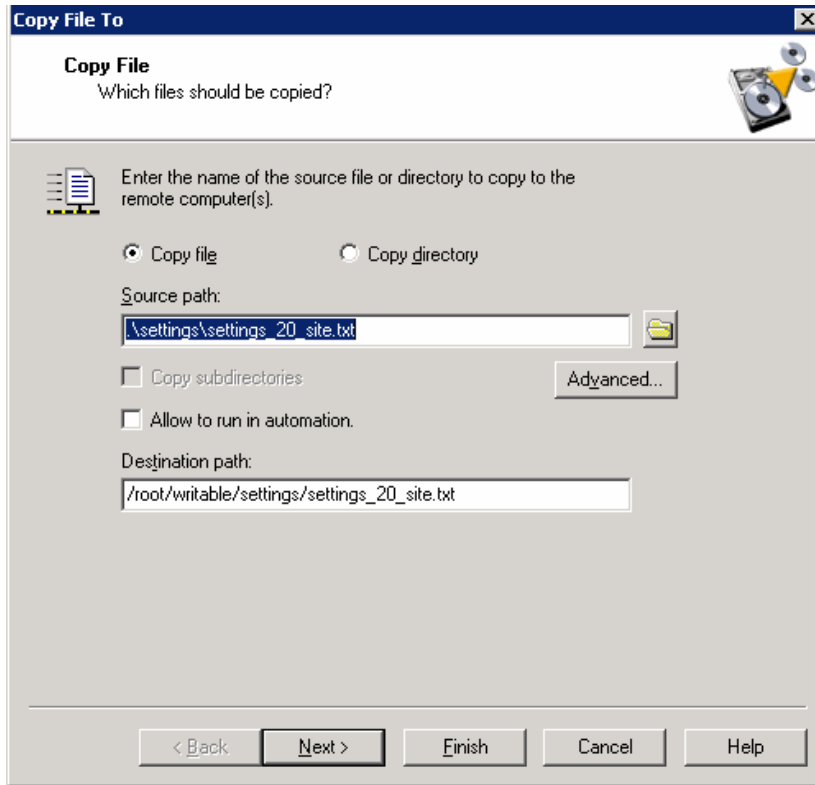
OK Cancel

In this step, the Altiris image is downloaded to the client computer, also in automation mode.

5-4 9xApplySiteSettings

The 9xApplySiteSettings job is a single-step job that copies the `settings_20_site.txt` file from the Altiris Deployment Server to the client computer (see Figure 5-9).

Figure 5-9 The 9xApplySiteSettings job

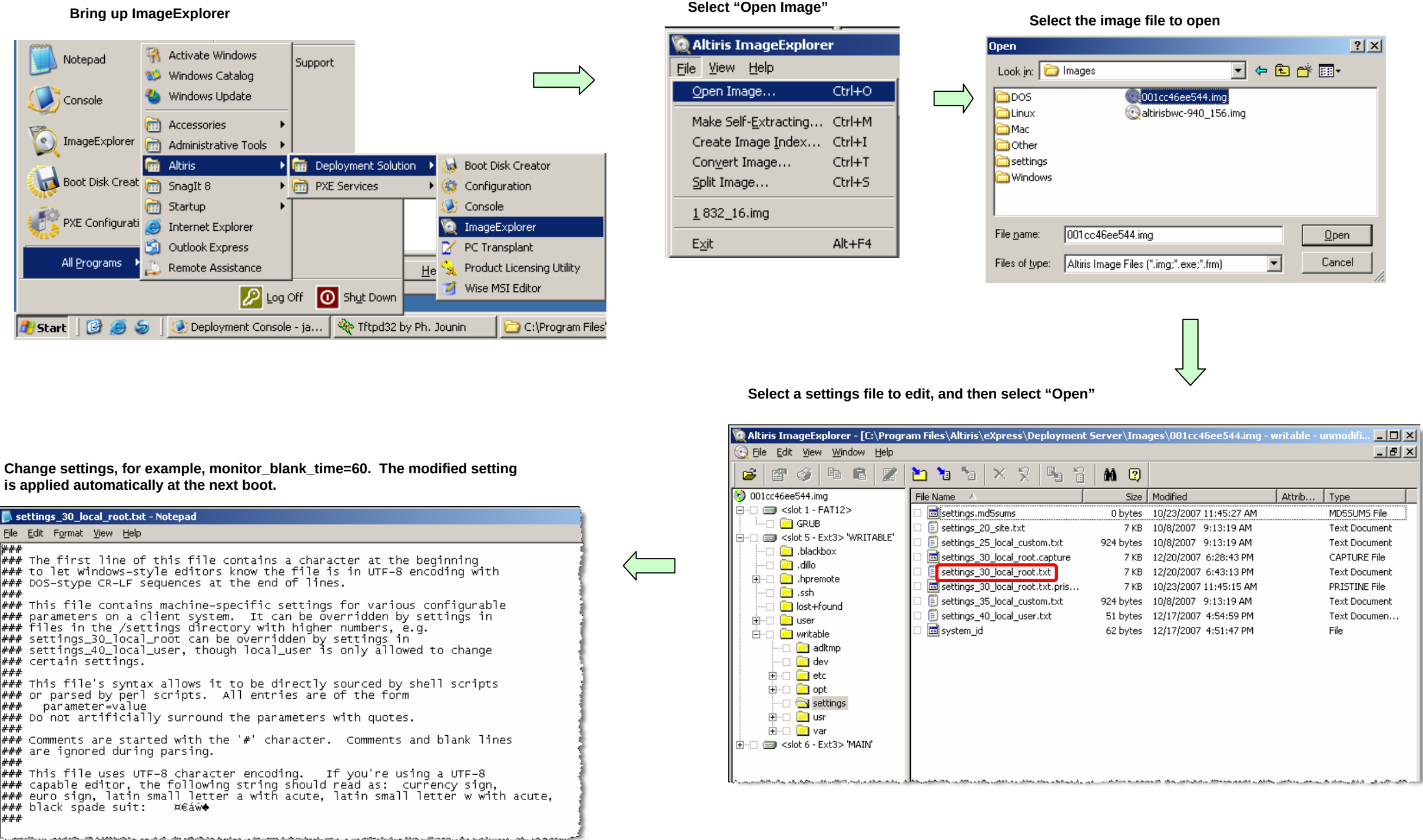


5-5 Modifying OS settings

Altiris Deployment Solution provides the ImageExplorer tool to allow you to modify the settings of Embedded OS 9.xx or 10.xx. Figure 5-10 on the next page shows how ImageExplorer is used to modify one of the Embedded OS 9.xx settings files.

Modifying Settings

Figure 5-10 Modifying Embedded OS 9.xx settings



6 Troubleshooting tips

This chapter provides tips to aid in troubleshooting issues with operation of the Altiris Deployment Solution. First, several log files are described that contain information useful in the troubleshooting process. Secondly, a table is presented of possible issues and suggestions.

6-1 Log files

This section describes log files useful to troubleshooting issues with operation of the Altiris Deployment Solution.

6-1-1 Turn the logging level up to 5 on the Altiris server

To aid in troubleshooting issues with operation of the Altiris Deployment Solution, it is recommended that the logging level be set to 5 on the Altiris Deployment Server, as follows:

1. Click **Start > All Programs > Altiris > Deployment Solution > Configuration**.
2. Click **Options** and then the **Debug** tab.
3. Change the logging level to 5.
4. Change the log filename if desired. The default is:

C:\Program Files\Altiris\express\Deployment Server\axengine.log

5. Click **OK** twice to save your changes and exit the Configuration tool.

6-1-2 Client log files for capture operations

On the client computer, check the following log files:

/root/writable/sanitize.log
/root/writable/sanitizerestore.log

Also check *.capture files (using `find / -name *.capture`)

6-1-3 Log files for deploy operations

For Altiris deploy operations, log files can be found on the Altiris server and the client computer in the following locations:

- **Altiris server**—Check the following log file:

C:\Program Files\Altiris\express\Deployment Server\settings*MACAddressOfClient*\restore.log

A copy of all preserved settings files is also saved in the settings directory under the MAC address of the client computer from which they were captured.

- **Client computer**—Check the log file at: /root/writable/restore.log

6-2 Issues and suggestions

Issue	Suggestion	HW/SW versions affected by this issue
e1000 error message in automation mode	Ignore. This happens every time the system reboots from automation mode & is an error sent out by the network adapter by default when it is shut down. When there is another error, the system pauses longer & users see this message. Investigate the other error, the e1000 network connection is probably not the problem.	All HP blade workstation clients All DS 6.8+ an RDP 3.70+ Altiris Versions
Client keeps rebooting to automation mode in a loop	Move 'Boot to next device' up to the top of the list in the PXE Configuration menu. If another preboot environment is first in the list & can't be accessed, the PXE server will keep trying.	All HP blade workstation clients All DS 6.8+ an RDP 3.70+ Altiris Versions
Client does not connect to DHCP/PXE server	- The client has attached to the first server it happened to detect on the subnet & it's not the Altiris server. Isolate the clients and Altiris server on their own private subnet or enter the static ip of the Altiris server into each Client's network settings. This setting can be applied using Webmin or by modifying the ds_address value in /root/writable/settings/settings_20_site.txt using the 9xApplySettings sample job. OR - Use the Boot Disk Creator tool to rebuild a clean 32-bit Linux automation preboot environment using the latest DOS/Linux .frm file downloaded from http://altiris.com/hptc This will ensure that you have the latest network drivers and that your automation pre-boot environment is not corrupted.	All HP blade workstation clients All DS 6.8+ an RDP 3.70+ Altiris Versions
DS 6.5 will not deploy to my HP blade Workstation Client	DS 6.5 is not supported. Upgrade to DS 6.8 or newer or RDP 3.70 or newer.	DS 6.5
HP dc73 network issues when trying to capture or deploy using DS 6.8 or RDP 3.70	Follow instructions in the Altiris 8x Guide to download the latest network drivers from the Altiris ftp site and use Boot Disk Creator to build them into a new 32-bit Linux automation preboot image.	dc73 client DS 6.8, RDP 3.70; Will be fixed in DS 6.9
HP dc73 DOM (disk on module) drive not detected during capture/deploy.	Dc73 uses ICH9 technology which requires updated drivers. Refer to the same section of the manual referred to in the previous row to get the latest SCSI/SATA drivers for your automation preboot environment.	dc73 client DS 6.8, RDP 3.70; Will be fixed in DS 6.9
DeployKeepSettings job failed. Need to recover settings.	Settings are still on the server under the express/Deployment Server/settings/<ClientMACAddress> folder. Run the 9xDeploy job to apply a clean OS and then modify the ApplySettings job with paths/filenames as needed to apply the settings retained on the server.	All clients All Altiris versions
Altiris license not found error	HP dc7* systems are recognized as being license exempt only if they have the HP Blade Workstation Embedded OS installed. All systems shipped from the factories come with the OS pre-installed. If you are replacing the DOM with a blank one, you must use a USB key to install the HP Blade Workstation Embedded OS the first time. Download the OS from support.hp.com/....	Clients that do not have an HP Embedded OS All DS versions

Invalid volume error during capture/deploy	On HP Embedded OS versions previous to 9.40, e2fsck must be run on partition 5 after every reboot to avoid a false 'dirty' flag. Either modify job scripts to run e2fsck on /dev/hda5 in automation mode before each task or update to 9.40 or newer HP Blade Workstation Embedded OS.	Older versions of Embedded OS All Altiris versions
--	--	---

Appendix A: Installing Embedded OS 9.xx or 10.xx from a USB key

This appendix describes an alternative method of installing Embedded OS 9.xx or 10.xx onto the client computer. The OS image is downloaded and installed on a USB key, and then the client computer is booted from the USB key to perform the installation. This method is useful if, for example, you're temporarily unable to use the Altiris Deployment Solution. Embedded OS 9.45 is used as an example.

A-1 Downloading Embedded OS 9.45 from HP

Perform the following steps on a Windows computer to download Embedded OS 9.45, and store the OS image on a USB key:

1. Based on your client computer, go to one of the following websites:
 - HP Blade Workstation Client: <http://www.hp.com/support/bwclient>
 - HP dc72 Blade Workstation Client: <http://www.hp.com/support/dc72>
 - HP dc73 Blade Workstation Client: <http://www.hp.com/support/dc73>
2. Click **Download drivers and software**.
3. Click **Workstation Blade Client Embedded OS**, scroll down to the **Software** section, select the desired "USB Key" image, and click **Download** (see Figure A-1).

Figure A-1 Selection of the 9.45 USB key image

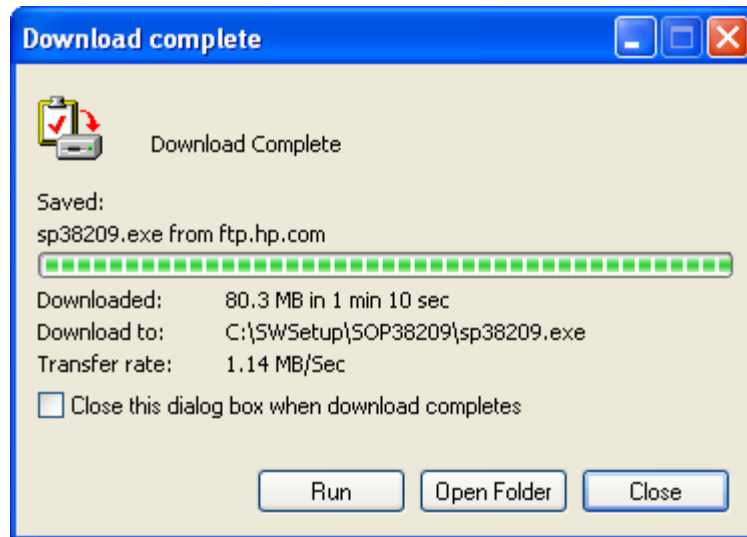
Software

Description	Current version	Size (MB)	Estimated download time	Previous version	
HP Compaq Blade Workstation Altiris Image	09.45 Rev. A 4 Jan 2008				» Obtain software
HP Compaq Blade Workstation Client USB Key Image Recovery	09.45 Rev. A 4 Jan 2008	80.4	56K: 3h 512K: 21m		Download »

4. You'll be prompted to either **Run** or **Save** the softpaq file—click **Save**, and specify the file location.

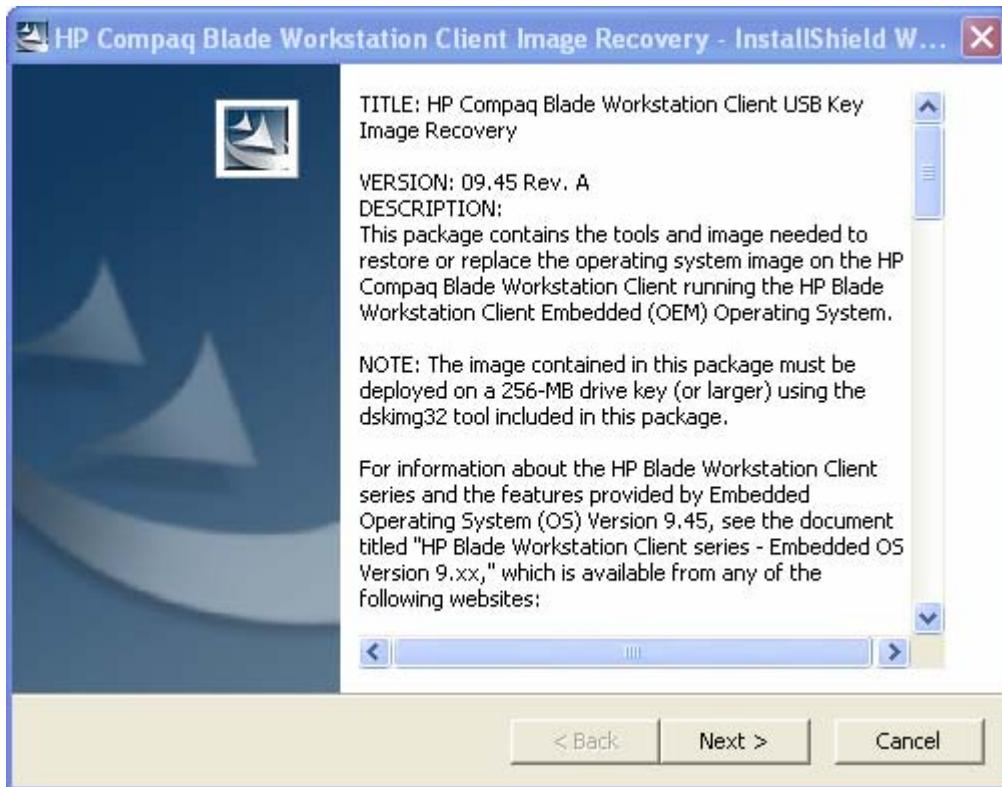
5. After downloading is complete, you'll be prompted for one of the following: **Run**, **Open Folder**, or **Close** (see Figure A-2). If you're ready to store the image on a USB key, click **Run**. If prompted, click **Run** again.

Figure A-2 Downloading of softpaq sp38209.exe is complete—click Run to continue



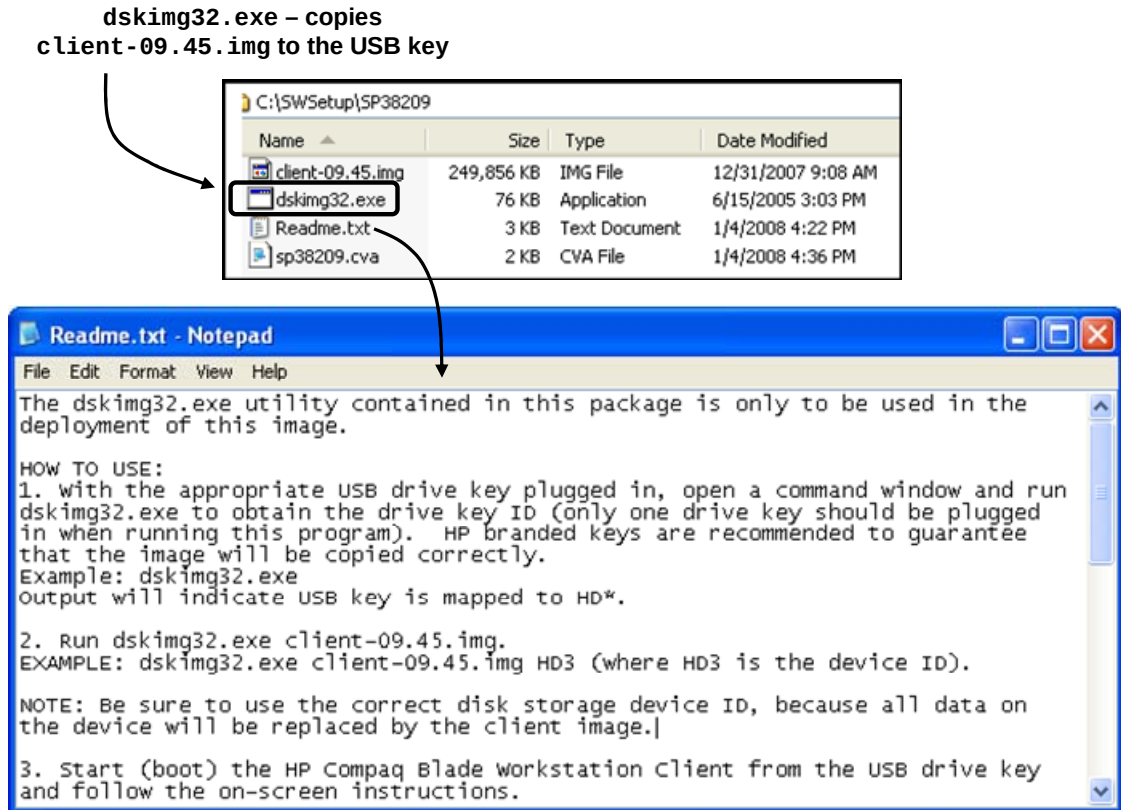
6. At this point, you'll see the first softpaq screen (see Figure A-3).

Figure A-3 Softpaq screen for the 9.45 USB key image



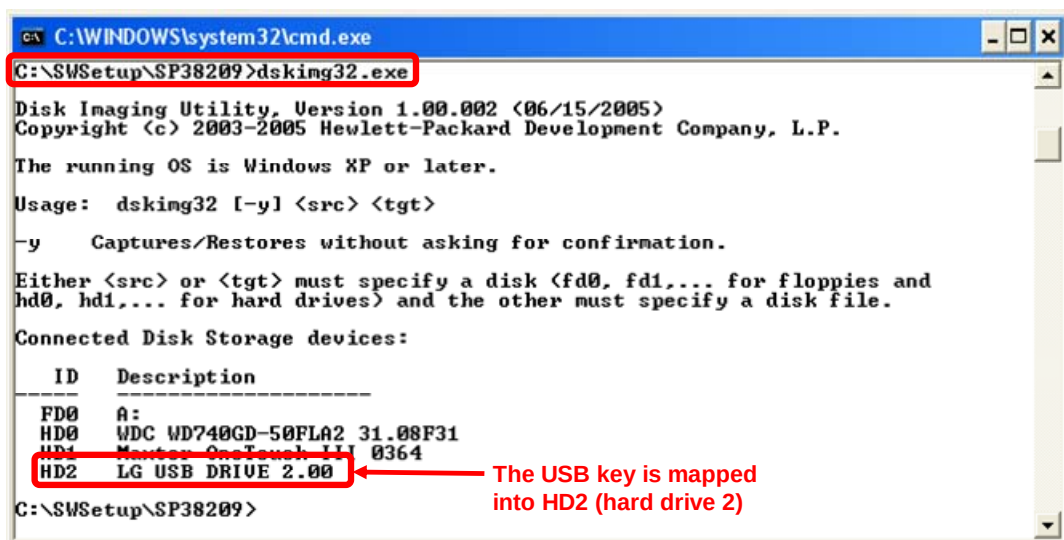
- Click **Next**, follow the softpaq instructions, and click **Finish** on the last softpaq screen. When execution of the softpaq is complete, the contents of the softpaq folder will be as shown in Figure A-4 (for the 9.45 USB key image). The folder will contain the image file (the Embedded OS file), the dskimg32.exe program (which copies the image file to the USB key), and a Readme.txt file.

Figure A-4 Contents of the softpaq folder



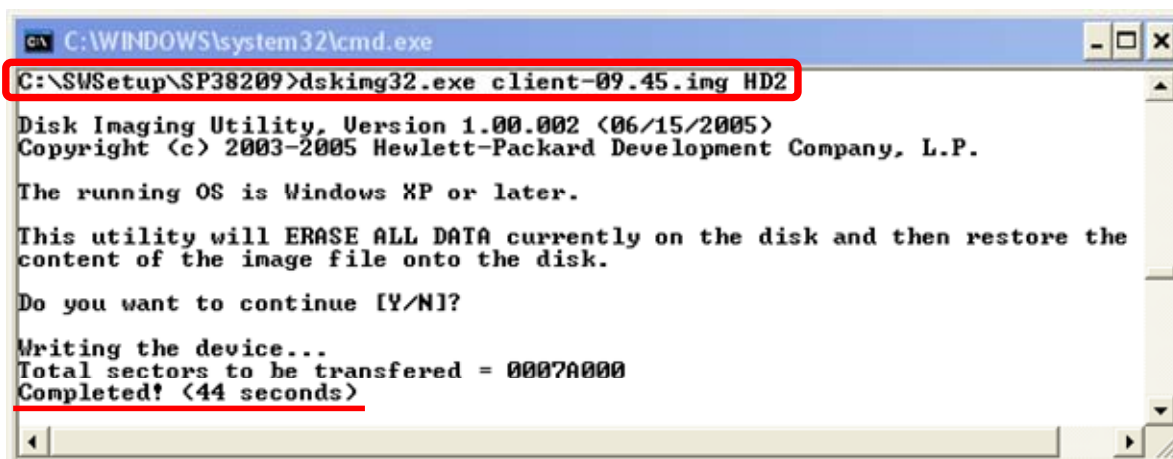
- Plug a USB key into the Windows computer, and run dskimg32.exe *without parameters* to determine the ID of the USB key (see Figure A-5). In this case, the USB key ID is "HD2".

Figure A-5 Determining the ID of the USB key



9. To copy the image file to the USB key, run `dskimg32.exe`, with the image file name and the USB key ID (HD2 in this case; see Figure A-6).

Figure A-6 Copying of the 9.45 image file to the USB key



```
C:\WINDOWS\system32\cmd.exe
C:\SWSetup\SP38209>dskimg32.exe client-09.45.img HD2

Disk Imaging Utility, Version 1.00.002 (06/15/2005)
Copyright (c) 2003-2005 Hewlett-Packard Development Company, L.P.

The running OS is Windows XP or later.

This utility will ERASE ALL DATA currently on the disk and then restore the
content of the image file onto the disk.

Do you want to continue [Y/N]?

Writing the device...
Total sectors to be transferred = 0007A000
Completed! (44 seconds)
```

At this point, the bootable image file is on the USB key, and the USB key can be removed from the Windows computer.

A-2 Example installation from the USB key

In this section, an example installation is performed that includes a clean installation (not an upgrade) plus setting of network parameters. The installation steps are as follows:

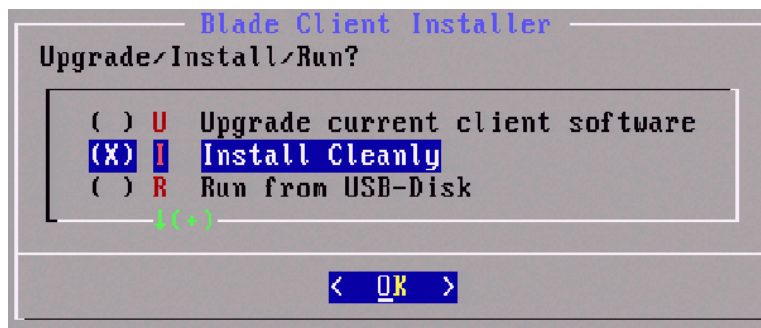
1. Plug the USB key containing the Embedded OS image into a USB port on the client computer. While either the front or back USB ports will work, use of a back USB port is recommended to minimize the possibility of damaging the extending USB key.
2. Cycle power on the client computer, which will initiate a boot from the USB key. The first screen will prompt you to select a keyboard language (see Figure A-7). Use the up and down arrow keys to select a keyboard language, and press **Enter**.

Figure A-7 Keyboard language selection



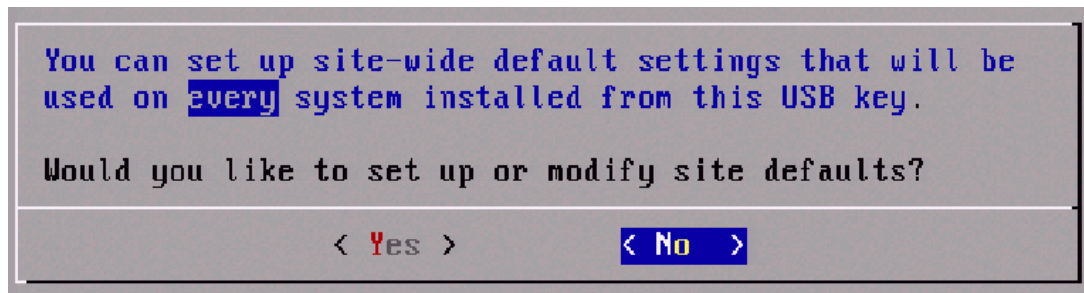
3. Next you'll be prompted to select either **Upgrade**, **Install**, or **Run** (see Figure A-8). Upgrade allows the OS to be installed while preserving client settings saved in the /settings directory. Install does a complete installation of the operating system, overwriting previous settings. Run allows the operating system to run directly from the USB key, and is primarily for troubleshooting. For this example, select **Install Cleanly**, and press **Enter**.

Figure A-8 Select Install Cleanly



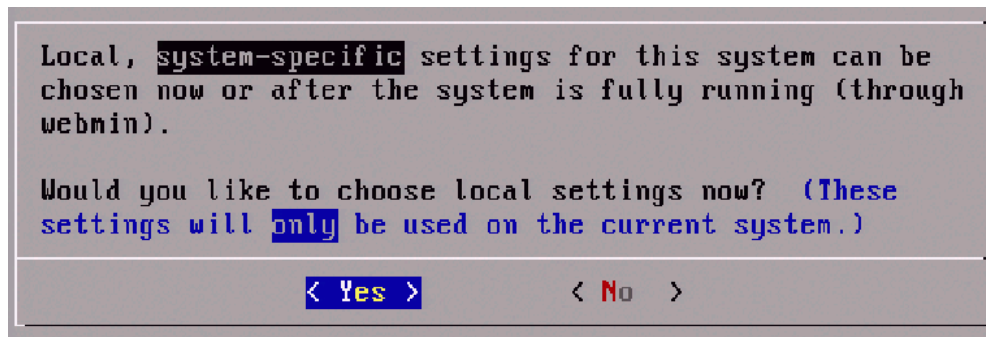
- The next screen will give you the option to set site-wide default settings that will be used on every client installed from this USB key (see Figure A-9). If you select **Yes**, the settings that you set on this client will be written to the USB key for use on subsequent installations. For this example, use the arrow keys to select **No**, and press **Enter**.

Figure A-9 Select No for site-wide default settings



- The next screen will give you the option of setting local, system-specific settings for this particular client (see Figure A-10). For illustration purposes and because Network Settings often need to be set, use the arrow keys to select **Yes**, and press **Enter**.

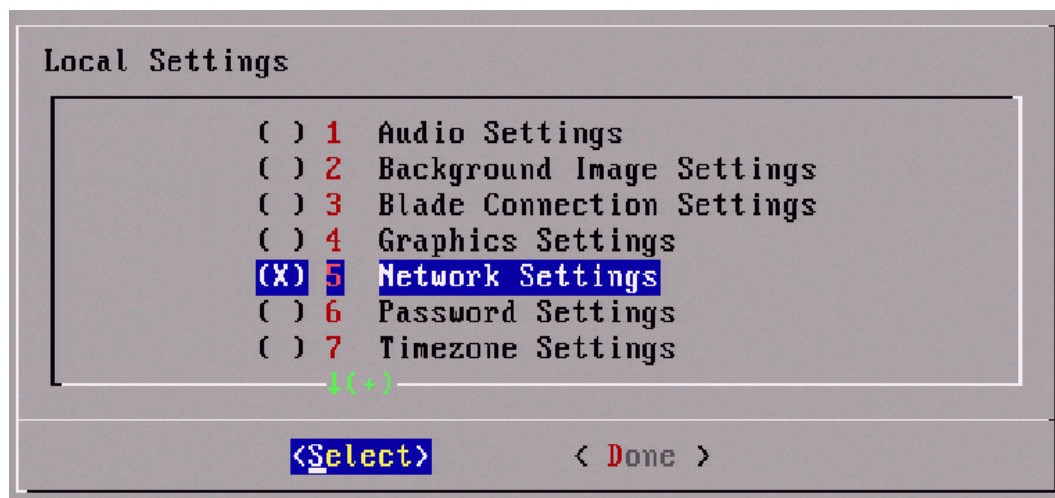
Figure A-10 Select Yes to set local, system-specific settings



 **NOTE:** Independent of whether or not you set local settings on the client at this time, you'll have the option of modifying the local settings subsequently using Webmin.

- The Local Settings screen is displayed next (see Figure A-11). Use the up and down arrow keys to select **Network Settings**, and press **Enter**.

Figure A-11 Local Settings screen



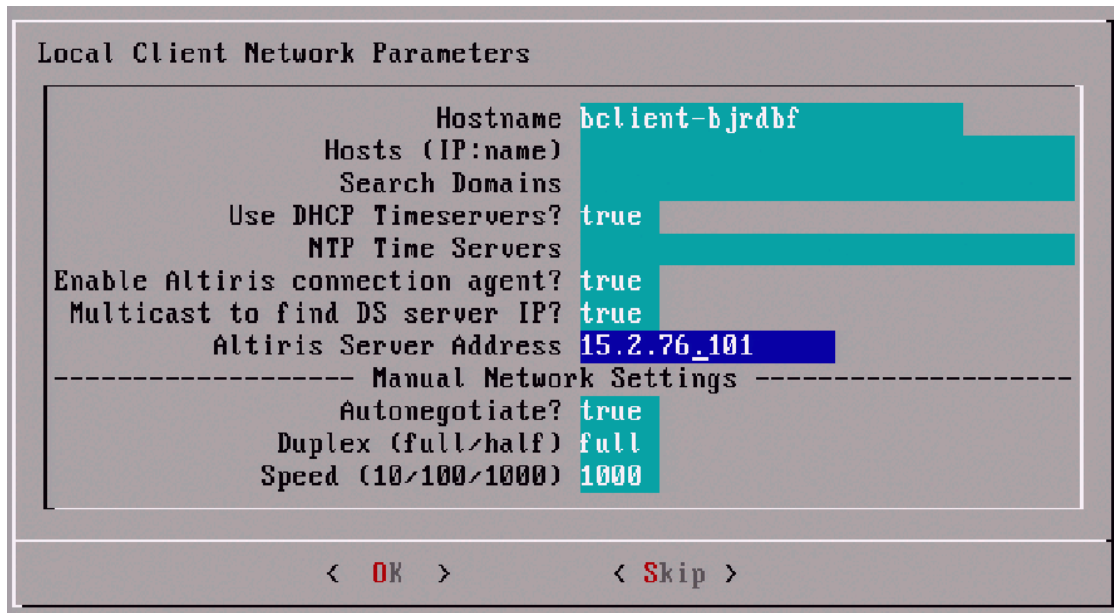
7. The next screen enables you to select the networking protocol (see Figure A-12). If you have a DHCP server, select one of the two DHCP options. If you don't have a DHCP server, select **Static networking**. When done, press **Enter**.

Figure A-12 Selection of networking protocol



8. The Local Client Network Parameters screen is shown next (see Figure A-13). Use the up and down arrow keys to select the parameter to change, and then enter the new parameter. For example, if you'll be using Altiris Deployment Solution in the future to install new Embedded OS images, enter the IP address of the Altiris server. In Figure A-13, the **Altiris Server Address** has been changed from its default value of 127.0.0.1 to 15.2.76.101. When done, press the **Tab** key to highlight either **OK** or **Skip** (if no changes need to be made), and press **Enter**.

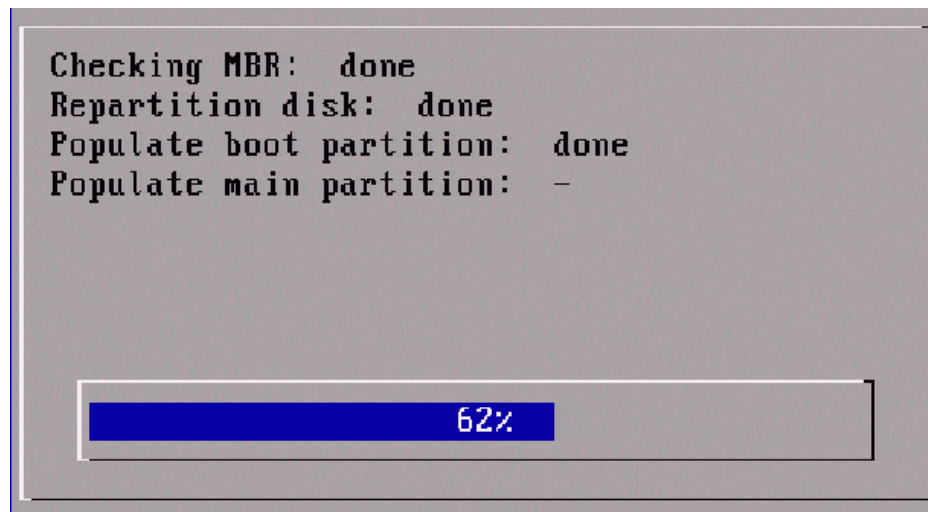
Figure A-13 Setting local client network parameters



9. The next screen enables you to change the Local Client Active Directory Parameters. Make any desired changes and use the **Tab** key to select **OK**, or just use the **Tab** key to select **Skip** to bypass making any changes—press **Enter** when done. In either case, you'll be returned to the Local Settings screen shown in Figure A-11.

10. Use the arrow keys to select **Done** on the Local Settings screen—this initiates the actual installation of the Embedded OS (see Figure A-14).

Figure A-14 Installation of the Embedded OS



11. After completion of the installation, you'll be prompted to press **OK** to reboot (see Figure A-15). Remove the USB key when the BIOS splash screen appears. The client will now boot the newly-installed Embedded OS.

Figure A-15 Installation complete screen

